

'I keep planes safe in the sky'

MEET LIZ BARTLETT,
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WHIZZ, SCIENCE ADVOCATE...
AND PROUD MEMBER OF
LLANDOGO WI

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If something's not right, I've always tried to change it, and that's what engineers do. I've always wanted to do something useful with my life and this is definitely useful. Air travel brings people together and it's shrunk the world, which is a really good thing – and making sure it's safe is very important.

I've been an aerospace engineer at Airbus for seven years.

I work on Airbus A330 jet airliners and my job is to use mathematical equations to figure out when the airlines, which buy the planes, will need to inspect the wings for stress. Imagine you have a paperclip and you bend it backwards and forwards a few times: eventually, the paperclip will break. The same thing happens with the wings on an aeroplane. When a plane takes off, it rises because of the lift on the wings and when it lands, it goes back down because of the weight of the wings. We make sure that there are no cracks or shaking in the wings and we do inspections to detect any problems.

I've always liked science and when I was younger, I wanted to be a vet. But I fainted when I tried to watch surgery on an animal at the age of 14 and after that I didn't really know what I wanted

to do. I was lucky that science was taught well at school and my teachers encouraged me to study A level science and maths. When I decided a degree in aerospace engineering sounded interesting, I had the right background.

Engineering is basically problem-solving: it's fixing stuff that's broken, like the mechanics who work on your car might do, but it's also designing solutions to problems. For example, every time you make something stronger, you also make it heavier, and then you might have to move weight somewhere else so that you stay within the weight requirement. At the end of the process, you have something that works and you get to see it fly. When we have a visit by one of our planes, I can look at its wings and I know all about it – how it was designed and how it's put together.

We use a wind tunnel to test new wing designs – it's big enough to fit a car in there, so sometimes they have Formula 1 teams come in to do some testing.

I spent three months in Toulouse, France, working on the Airbus flight test fleet. Every time the company comes out with a new aeroplane, the first one is retained for testing. It's run like a mini airline: the planes fly around all day, and then they come back to be inspected. I became really hands on, as I was able to climb on them and see them up close. When you're under the wing, you appreciate how heavy these things are. The fact that 250 tonnes of metal is able to fly is just amazing – even though I've done the maths and I know exactly how it flies.

There aren't very many female engineers in the UK at the moment; the industry is about 10 per cent women. It doesn't bother me because I grew up with two brothers and no sisters so I was always a tomboy; but I still like to meet up with my female co-workers to have a chat and support each other. Women are really good at solving problems and sometimes I think if we just called engineering 'problem-solving', more girls would be interested in doing it.

I've met plenty of amazing women through Llandogo WI. I moved here in 2017 and I want to live here forever – it's basically a village surrounded by forest and it's lovely to be living amid so many trees. When I first arrived, my next-door neighbour turned out to be the president of the WI. She stood on top of her garden



ABOVE and BELOW Liz admires the iconic British Airways Concorde, one of the most prized exhibits in the Aerospace Bristol Museum. The record-breaking Alpha Foxtrot was the last of the supersonic passenger jets to be built and also the last to fly in 2003



wall, shouted down to introduce herself and invited me to their next meeting. I didn't know anything about the WI, but I wanted to meet people, so I turned up – I think she was a bit surprised.

There are 40 women in my WI and that's about half the households in the village. It gets you out of your house in the evenings, especially in winter when it's dark – if it wasn't for the WI, I'd just go into hibernation. We take trips, there's a craft club and the thing I've been most involved with is the book club. I love reading fantasies such as *Game of Thrones* and anything written by Terry Pratchett, but our book club gets me reading books I wouldn't usually choose to read.

When I'm not working on planes, part of my job is giving presentations at schools to encourage kids to study STEM subjects (science, technology, engineering and maths). 'Engineer' isn't a protected title in the UK and because of that, I don't think there's

enough understanding of what engineering is. Most people don't know that you don't need to go to university to get into aerospace engineering: you can do an apprenticeship that will lead to a degree. One woman I know did her apprenticeship at the age of 35. It's a really interesting job and, by being involved, you are doing something that can make a difference. There will always be a need for engineers. Going into schools is one of the favourite parts of my job – it's good to show young girls in particular that they can do anything they want.

▪ **Liz is a member of Llandogo WI, Gwent Federation. With thanks to the Aerospace Bristol Museum.**